REMARKS

Claims 1-43 are pending in the above-identified application, with claims 13-40 being withdrawn from consideration as directed to a non-elected invention. Claims 1-7, and 9-11 have been amended, and claims 41-43 have been added.

Rejection under 35 U.S.C. § 102

Claims 1-12 have been rejected under 35 U.S.C. § 102(b) based upon a public use or sale of the invention. In support of this rejection, several prior systems and articles have been cited in the outstanding Office Action.

None of the prior systems referenced in the Office Action, nor any of the systems described in the articles mentioned in the Office Action, include the subject matter recited in claims 1-12 and 41-43. In particular the approaches for dealing with low-volume products recited in the pending claims were not used in any of the systems recited in the Office Action. The invention recited in these claims has been sold by the Retail Pipeline Integration Group, Inc. under the name Retail Pipeline, and by Tomax Corporation under the names Retail Resource Planning, Advanced Merchandising and Inventory Management. None of these products were offered for sale, sold, or publicly used, nor was the subject matter of these products described in a patent or printed publication, more than one year before the filing date of the above-identified application, i.e., before July 5, 2000.

To assist the Examiner in understanding the differences between the claimed invention and the products and services of the prior systems referenced in the Office Action, Applicant will schedule an interview in the near future to discuss these differences.

The Examiner has requested other information regarding public use and/or sale of products or services that have incorporated the claimed subject matter. While almost no information of the sort the Examiner has requested exists, Applicant is reluctant to produce, and may be contractually precluded by confidentiality obligations from producing, the information that does exist, i.e., a 400-page electronic help manual. This reluctance arises from the sensitive business

nature of this information. To be clear, the help manual pertains only to public use, offers for sale and sales of products and methods after the critical date, i.e., July 5, 2000. If, after review of this response and completion of an interview the Examiner still feels additional non-prior art information is relevant, then Applicant will be pleased to address further the Examiner's request for information.

The invention recited in the pending claims in the above-identified application was invented solely by Darryl V. Landvater. Andre Martin is not an inventor with respect to any of these claims. Mr. Martin and Mr. Landvater worked together at LogicNet, a company that was involved in the development of store-level supply chain software. None of the concepts used in the invention claimed in the present application were used in LogicNet products, and so it is not surprising that Mr. Martin is not an inventor in the present application.

Applicant has considered the request for publications, and he has not authored or co-authored any publications which describe the disclosed subject matter and/or products or services.

Rejection under 35 U.S.C. § 103, Willemain v. Lee v. Jenkins, and further in view of Schultz

Claims 1-2 and 4-12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over USP 6,205,431 to Willemain et al. ("Willemain") in view of USP 5,712,985 to Lee et all ("Lee") and further in view of Publication No. 2002/0188499 to Jenkins et al ("Jenkins"). Further, claim 3 has been rejected in view of this combination and further in view of the article by Carl Schultz entitled "Replenishment Delays For Expensive Slow-Moving Items" ("Schultz"). All of these rejections are discussed below.

Before discussing the rejections, some background information regarding the present invention and how it differs from the Willemain/Lee/Jenkins combination may be helpful. The invention recited in the independent claims under examination is designed to determine time-phased sales forecasts and planned replenishment shipments for low-volume products sold at the retail store level. By determining aggregate demand for a product with time phasing using seasonal profiles

and randomization techniques, the claimed invention avoids a serious problem in prior art systems, i.e., bunching up of the low-volume products during the first few time periods. This results in a distorted pattern of demand that adversely affects inventory at the retail store level, but also creates distortion of demand at the distribution center, and with respect to capacity requirements (labor hours), transportation requirements (weight and cube), and financial planning (planned purchases). A further benefit of the claimed invention is that it produces an aggregate demand for products in the supply chain for use by entities supplying products at the retail store level. This aggregate demand may be used in a way that avoids the need for forecasting at the distribution center or other levels of the supply chain below the retail stores. As discussed more below, no basis exists for combining the Willemain, Lee and Jenkins references so as to teach or suggest the invention recited in the pending claims.

Applicant's claimed invention uses randomization in generating time-phased planned shipments so as to avoid distorted demand. This is not randomization of lead times. Rather it is randomization of where to drop the forecasts so that the aggregate demand represents an accurate prediction of total demand at entities in the supply chain that supply the retail stores, e.g., distribution centers or other retail stores, and for other planning purposes such as capacity, transportation, financial planning and the like. By accurately predicting total demand, bunching of replenishment shipments early in a forecasting period is avoided.

Discussing the bunching problem in more detail, many retail stores have a significant number of low-volume products. These are products where sales do not occur in every week. In fact, some of these products may go many weeks between sales. For this reason, a forecasting system designed to be used at the store level must be able to forecast these types of products. One approach that can be followed to forecast low-volume products is to create small weekly forecasts.

An example of this type of forecasting would be a product that sells at a rate of 10 per year or about 0.2 per week. This type of product can be forecast using weekly forecasts with a quantity of 0.2. (For the sake of simplicity, this example assumes a uniform sales rate over the year.) The difficulty with this approach is not so much the forecast as the effect on replenishment planning. Whenever the projected on-hand balance goes below the safety stock, the

replenishment logic will create a planned shipment. For example a safety stock (display quantity) of 2 and an on-hand balance of 2 is a fairly typical situation for many products (one to go and one to show). However, an on-hand balance of 2 and weekly forecast of 0.2 gives a projected on-hand balance of 1.98 at the end of the first week. This is below the safety stock of 2 and consequently the replenishment logic will create a planned shipment in the first week.
This planned shipment is typically within the lead time, and so it should be released and shipped to the store sometime this week. See the spreadsheet of Attachments 1a and 1b, which illustrates how this bunching occurs early in the forecasting period with traditional DRP logic for high-volume products (first page) and for low-volume products (second page).

Most retailers do not want bunched replenishment shipments early in the forecasting period. In this example the forecast for the week is 0.2 units, so eight times out of ten, the product will not sell during that week. Many retailers want on-hand balances of low-volume products that are not much greater than the safety stock (display quantity). This bunching up of planned shipments in the first few weeks violates the basic rule of time-phased forecasting and replenishment shipment systems: a valid simulation of reality. This large number of planned orders in the first time period creates a false demand on the distribution center (DC) for use in planning replenishment at the DC (because planned shipments at the stores are accumulated to become the projected demand on the store's supplier). Additionally, the large number of planned orders in the first time period also creates false demands in capacity planning, load building, and financial planning.

Applicant's invention avoids this problem through specialized logic that performs forecasting in integer values spaced over time. Using the example above (a product that sells at a rate of 10 per year or about 0.2 per week), this type of forecasting would represent the forecast as a quantity of one every 35 or 36 days. This has the advantage of being more like what will actually happen since 0.2 will not sell every week, but one unit will sell every so often. This approach has the advantage of not bunching up all the planned orders in the first few time periods and therefore provides a more valid simulation of reality.

The present invention uses a randomization calculation intended to simulate the what happens in the real world. A forecast is a probability. A forecast of 1 every thirty-five or so days, for

example, means that it is likely the product will sell one somewhere in the thirty-five day forecast period. For some stores, the product will sell early in the forecast period, such as day one or two for example. For other stores, the product will sell late in the forecast period, such as day 33 or 34 for example, and so on for the other days in the forecast period. There is no way to tell which stores will sell early in the forecast period and which stores will sell late in the forecast period. However, it is important to spread these forecasts out in such a way that the totals provide an even distribution over time, and are not bunched up at the beginning, middle or end of the forecast period.

Because these forecasts are in integer quantities and are spaced over time, the planned shipments are not bunched up in the first few weeks as in the situation explained earlier. If a store has an on-hand balance of 2, a safety stock (display quantity) of 2, and a forecast for one 25 days in the future, the first planned shipment will be created for 25 days in the future. If another store has an on-hand balance of 2, a safety stock (display quantity) of 2, and a forecast for one 10 days in the future, the first planned shipment for the is product will be created for 10 days in the future, and so on for the other stores. This provides a series of planned shipments that can be used for financial planning, capacity planning, and transportation planning because they represent, in total, what is likely to happen. See Attachment 2, which contains an example of how the present invention avoids the bunching problem discussed above.

What will actually happen is that a store with a forecast of one 25 days in the future may make a sale early in the forecast period, and a store with a forecast of one 10 days in the future may not make a sale until late in the period. When a store makes a sale, the on-hand balance drops below the safety stock, and a planned shipment is created for the first available shipping date. When this shipment is received at the store, the on-hand balance now equals (or exceeds the safety stock), and the process of randomizing the predictions of when a sale will occur starts over again.

In the examples discussed above, we have assumed a flat or uniform selling pattern over the year. While this makes the logic easier to explain, it does not represent most products. Therefore, the logic of the present invention attempts to predict when a sale will happen and also takes into account the selling pattern for the product. The result is that the integer forecasts of one will be

more closely spaced during a period when the product sells well, and will be spaced further apart during a period when the product sells less well. For example, if the product is expected to sell once every 35 or so days on average, there may be periods during the year where the forecasts for one are spaced only 20 days apart, and also periods during the year where the forecasts for one are spaced 40 days apart.

Discussing Willemain and Lee in more detail in light of the preceding background discussion, Willemain uses randomization in connection with forecasting demand for slow-moving products. As the Examiner correctly points out, however, the Willemain system does not take seasonal selling profiles into consideration in connection with forecasting demand for slow-moving products. In an attempt to overcome this deficiency in the teachings of the Willemain patent, the Lee patent has been combined with Willemain. Lee discusses the use of seasonality in product sales in connection with forecasting demand and production scheduling. Lee does not discuss the use of randomization in connection with forecasting projected sales and replenishment shipment dates in a retail supply chain.

As relates to the system and method recited in the pending claims, Willemain's system would have to be so fundamentally altered so as to be combinable with Lee in a way that would produce a system having the features recited in the pending claims that it is believed no motivation exists for the combination. Willemain would no longer be Willemain with such a combination. As such, the claimed invention is not believed to be obvious. The Willemain system is designed primarily for use in sourcing spare parts, but also capital equipment, chemicals and other products for which there is little seasonality in demand. The intended application for the Willemain system alone indicates there is no motivation for a combination with the seasonal profile teachings of Lee. Willemain just wasn't concerned with products having a seasonal selling profile.

Perhaps more significantly, however, the logic underlying the Willemain system would need to be fundamentally altered to work with the seasonal profiles of Lee. Willemain relies on a series of samples taken over a selected sales period. If seasonality is to be used in the forecast, the only appropriates samples are from the periods during the prior year when sales spike up or

down due to seasonal factors. As such, the series of samples contemplated by the Willemain logic would be collapsed into a single sample or a small number of samples (and certainly not the thousands of samples contemplated by Willemain), thereby essentially breaking the logic.

In summary, unless the Willemain and Lee systems were made to cooperate using specialized logic of the type used in the present invention, which is certainly not disclosed, then forecasting would not be performed using "(i) seasonal selling profiles for each of said low-volume products during said first time period and (ii) randomization techniques . . . in a way that avoids overstating demand in early portions of said first time period," as recited in claim 1. The invention is similarly defined in the other pending independent claims.

The impropriety of hindsight reconstruction is often discussed in responses to Office Actions, but it certainly bears mention here. The teachings of Willemain and Lee would have to be gutted, and significant new development performed to achieve the specialized logic that results in the claimed combination of seasonality and randomization in a way that avoids bunching early in the period in which replenishment shipments are being determined. This is a strong indicator of the non-obviousness of the claimed invention in light of Willemain and Lee.

The Jenkins reference does not provide a motivation or suggestion to combine the teachings of the Willemain and Lee references, nor does it otherwise provide the teaching or suggestion necessary to render obvious the invention recited in the pending claims. In particular, Jenkins does not disclose a system or method for determining replenishment shipment dates using projected sales determined using "(i) seasonal selling profiles for each of said low-volume products during said first time period and (ii) randomization techniques . . . in a way that avoids overstating demand in early portions of said first time period," as recited in claim 1. While Jenkins does disclose approaches for determining replenishment shipments, it certainly does not do so in the manner recited in claim 1 and the other pending independent claims.

Given the absolute silence in the Willemain/Lee/Jenkins combination regarding the desirability of combining their respective teachings to achieve the claimed invention, it follows that the details of the invention recited in the pending dependent claims, as amended or newly

introduced, are also neither taught nor suggested by the pending claims given their dependency on patentable independent claims. Independent bases for patentability also exist for the dependent claims.

Concerning the rejection of claim 3, Schultz does not overcome the deficiencies of the Willemain/Lee/Jenkins combination discussed above. While Schultz is not believed to teach the use of offsets in the context of the invention recited in claim 3, the fact that this claim depends on claim 2, which is patentable for the reasons discussed above, makes it patentable.

New Claims

With respect to amended claim 10 and new claims 41-43, the Willemain and Lee systems are not designed to determine aggregate demand for products for use at the distribution center or other level in the supply chain, and for capacity, transportation, purchasing and the like, based on forecasts developed with a system of the type recited in the pending independent claims. This is an important benefit of Applicant's approach to determining replenishment shipments as it avoids the need for separate forecasting systems at levels of the supply chain below the retail stores.

CONCLUSION

In view of the foregoing, Applicant submits that claims 1-12 and 41-43 are in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully requested. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,

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BTV.552244.03

Attachment 1a

Traditional DRP logic, high volume product

NOTE: The time periods with planned orders are where the projected on hand would go below the safety stock if it were not for the planned order.

Store 1	
On-hand	8
Safety stock	5
Order quantity	10

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	1	1	2	2	3	3	2	2	1	1
Projected on hand	7	6	14	12	9	6	14	12	11	10
Planned order			10				10			

Store 2	
On-hand	12
Safety stock	7
Order quantity	10

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	2	2	4	4	6	6	4	4	4	2
Projected on hand	10	8	14	10	14	8	14	10	16	24
Planned order			10		10		10		10	

etc. for any number of stores

Store X	
On-hand	15
Safety stock	5
Order quantity	10

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	3	3	4	4	4	4	4	4	4	4
Projected on hand	12	9	5	11	7	13	9	5	11	7
Planned order				10		10			10	

Distribution center 1	
On-hand	50
Safety stock	20
Order quantity	100

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	10	30	40	50	60	50	40	40	30	20
Projected on hand	40	110	70	20	60	110	70	30	100	80
Planned order		100			100	100			100	

This series of spreadsheets shows a store level forecast using seasonal profiles, and standard DRP logic.
The forecast at the distribution center is the sum of the planned orders to the stores.
This takes into account the sales forecasts at the stores, the inventory at the stores, and the order quantities at the stores.
Not shown in this example are the additional effects of lead time and delivery schedules because they are not pertinent to the example.

Attachment 1b

Traditional DRP logic, low volume product

NOTE: The time periods with planned orders are where the projected on hand would go below the safety stock if it were not for the planned order.

Store 1
On-hand 2
Safety stock 2
Order quantity 1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0.010	0.010	0.020	0.020	0.030	0.030	0.020	0.020	0.010	0.010
Projected on hand	2.99	2.98	2.96	2.94	2.91	2.88	2.86	2.84	2.83	2.82
Planned order	1									

Store 2
On-hand 2
Safety stock 2
Order quantity 1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0.02	0.02	0.04	0.04	0.06	0.06	0.04	0.04	0.02	0.02
Projected on hand	2.98	2.96	2.92	2.88	2.82	2.76	2.72	2.68	2.66	2.64
Planned order	1									

etc. for any number of stores

Store X
On-hand 2
Safety stock 2
Order quantity 1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Projected on hand	2.97	2.94	2.92	2.90	2.89	2.88	2.87	2.86	2.85	2.84
Planned order	1									

Distribution center 1
On-hand 50
Safety stock 20
Order quantity 48

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	40	0	0	0	0	0	0	0	0	0
Projected on hand	58	58	58	58	58	58	58	58	58	58
Planned order	48									

This series of spreadsheets shows a store level forecast using seasonal profiles using standard DRP logic. Many low volume products have on-hand balances near the safety stock quantity.

Consequently, standard DRP logic in this situation creates planned orders in the first time period for many stores. The forecast at the distribution center is the sum of the planned orders to the stores, which in this case creates a false demand in the first time period.
Not shown in this example are the additional effects of lead time and delivery schedules because they are not pertinent to the example.

Attachment 2

Revised logic for low volume products

NOTE: The time periods with planned orders are where the projected on hand would go below the safety stock if it were not for the planned order.

Store 1

On-hand	2
Safety stock	2
Order quantity	1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0	0	0	1	0	0	0	0	0	0
Projected on hand	2	2	2	2	2	2	2	2	2	2
Planned order				1						

Store 2

On-hand	2
Safety stock	2
Order quantity	1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0	0	0	0	1	0	0	0	0	0
Projected on hand	2	2	2	2	2	2	2	2	2	2
Planned order					1					

etc. for any number of stores

Store X

On-hand	2
Safety stock	2
Order quantity	1

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	0	1	0	0	0	0	0	0	0	0
Projected on hand	2	2	2	2	2	2	2	2	2	2
Planned order		1								

Distribution center 1

On-hand	50
Safety stock	20
Order quantity	48

Time period	1	2	3	4	5	6	7	8	9	10
Forecast	3	4	3	5	6	5	4	3	3	2
Projected on hand	47	43	40	35	29	24	20	17	14	12
Planned order								48		

This series of spreadsheets shows a store level forecast using seasonal profiles, randomization, and standard DRP logic.
Many low volume products have on-hand balances near the safety stock quantity.
However, the randomization distributes the integer forecasts into the future based on the combination of a selling profile and randomization.
Not shown in this example are the additional effects of lead time and delivery schedules because they are not pertinent to the example.